

games among children of many races, in unconscious continuation of the early use of certain weapons and kinds of warfare, or of manual work, of superstitions, and of gambling.

Much is collected in these chapters about the scratch-cradle and its meanings, about kites, tops, and tug-of-war game, and especially about the whirring, whizzing, buzzing, booming, perforated stick, whirled violently around with a string. This (known as the "Bull-roarer") is recognized as the ancient widespread ceremonial implement, once awing the superstitious, and still important in the hands of the conductors of the rites of Initiation in Australia. Children's singing-games are mainly concerned with courtship, marriage, funeral rites, and belief in ghosts, evidently (though distantly) representing ancient customs and lines of thought, in some cases still surviving in full force among savages and, in feebler fashion, among civilized communities.

Chapter XVI., pages 434-467, reprints the "practical suggestions for conducting ethnographical investigations in the British Islands," and includes at pages 467-489 "Instructions for the Collection of Folk-lore," an important branch of the science.

Appendix A consists of Dr. D. G. Brinton's comprehensive and very useful Classification and International Nomenclature of the Anthropological Sciences, namely:—(1) Somatology, (2) Ethnology, (3) Ethnography, (4) Archæology, and their subdivisions. A careful Index completes this well-considered and welcome addition to the library of both the experienced scientist and of the general reader who wishes to enlarge his knowledge, feeling assured that a careful systematic study of Mankind is a good and proper object for the cultivated intellect of Man.

Trouessart's Catalogue of Mammals.

Catalogus Mammalium, tam viventium quam fossilium. By E. L. TROUËSSART. Parts IV. and V., containing the Orders Tillodontia, Ungulata, Sirenia, Cetacea, Edentata, Marsupialia, and Monotremata. Berlin: Friedländer and Son, 1898.

WITH the exception of the Addenda and Index Dr. Trouessart has now completed his stupendous task; and all naturalists owe him a debt of gratitude, the extent of which it is almost impossible to express in words. Till he had this work to refer to, it was in many cases a matter of extreme difficulty for the zoologist or palæontologist to discover how many species (whether valid or nominal) of a particular group had been named; but for the future all is comparatively plain sailing.

That the work has faults is, as we have pointed out in previous notices, from the nature of the case, inevitable; but the marvel is that these faults and omissions are so few and far between. To have enabled him to complete his labour Dr. Trouessart must possess patience and industry far above the average, while he has also the technical knowledge of his subject which raises his work to

a much higher level than the efforts of the mere compiler and bibliographer. In the name of our fellow students of recent and fossil mammals, we beg to tender to the learned author our most hearty congratulations and thanks.

As the Ungulata happen to be a group with which the reviewer has a more extensive acquaintance than he possesses of some of the other mammalian orders, such critical observations as seem necessary may be restricted to that group.

One of the first points that strikes us is that the author has not been sufficiently bold in relegating to the rank of synonyms names which have clearly no right to stand by themselves. Secondly, it is not quite easy to understand the method he has adopted in the selection of the generic names he employs. Take the instance of the true American deer, all of which are included in the genus *Cariacus*, with several subgeneric divisions. Now he admits that *Cariacus* is antedated by *Dorcelaphus*, while he further states that both are antedated by *Mazama* of H. Smith; but he adds that this latter is not the same as *Mazama* of Rafinesque, which is earlier than all. And yet on page 897 the *Mazama* of Rafinesque is admitted as identical with *Coassus*, which is itself one of the subgenera of *Cariacus*. Accordingly the latter term has no sort of justification for its retention, while if all the exclusively American groups of deer, with the exception of the pudus, are to be included in a single genus, that genus must, it would seem, be *Mazama*, if priority is to be regarded at all.

That these American deer are best included in a single genus, with subgeneric divisions, we quite agree, and we also hold with the author in arranging the majority of the deer of the Old World in the single genus *Cervus*, with analogous subgenera. But when this course is adopted it appears to us clear that the oxen should be treated in a similar manner; whereas we find the author employing terms like *Bibos* and *Bison* in a generic instead of a subgeneric sense.

Although, as will be evident from these remarks, we have a preference, and that a strong one, it is, to our thinking, a matter of small moment whether generic terms are used in a broad or a restricted sense. Yet it is a matter of importance that some degree of uniformity in such usage should be maintained in allied groups. This, we submit, is not the case with Dr. Trouessart's classification of the Pecora.

Again, he does not maintain a uniform practice with regard to the "*Scomber scomber*" principle. While we have, for instance, on page 829 the babirusa figuring as *Babirussa babirussa*, we find the roebuck (p. 888) appearing as *Capreolus caprea*, in spite of the fact that *capreolus* was the Linnean specific name of the latter. Here, again, one or the other course should be adopted and uniformly adhered to.

All the foregoing instances refer to classificatory matters, which are, after all, more or less dependent on individual opinion. On page 881 we find, however, the author deliberately going out of his

way to contradict well-known authors on a matter of fact. We refer to the inclusion of the Altai wapiti (*Cervus eustephanus* of Blanford) as a synonym of the Persian red deer (*C. maral*). A greater blunder could hardly have been committed.

Neither is the work quite free from misprints, as witness *Rucercus* for *Rucervus*, on page 875.

Nevertheless, as already said, the blemishes and faults are but few, while good work is pre-eminently conspicuous; and we therefore close this brief notice with a repetition of the sense of the obligation under which Dr. Trouessart has placed all working students of the Mammalia.

R. L.

PROCEEDINGS OF LEARNED SOCIETIES.

GEOLOGICAL SOCIETY.

November 9th, 1898.—W. Whitaker, B.A., F.R.S.,
President, in the Chair.

The following communication was read:—

‘On the Palæozoic Radiolarian Rocks of New South Wales.’
By Prof. T. W. Edgeworth David, B.A., F.G.S., and E. F. Pittman,
Esq., Assoc.R.S.M., Government Geologist, New South Wales.

The first evidence of the presence of radiolaria in the rocks of New South Wales was obtained by Prof. David in 1895, as the result of a microscopic examination of some red jaspers from different areas. Further research by the same author was stimulated and guided by seeing the radiolarian rocks recently discovered in Mullion Island, Cornwall, and in the Culm-districts of Devonshire, during a visit to England in 1896; and on his return to Sydney he recognized the existence of a series of cherts, lydites, and siliceous limestones containing radiolaria in four distinct areas. A brief preliminary account of these rocks was communicated to the Linnean Society of New South Wales, and specimens were forwarded to Dr. G. J. Hinde for determination of the radiolaria. Subsequently, in conjunction with Mr. Pittman, a detailed examination of the rocks in the field was carried out, and the results are given in the present paper. In this final investigation it was ascertained that not only in the cherts and siliceous limestones, but also in the jointed claystones which form the prevalent sedimentary rocks of the Tamworth district, radiolaria were distributed in vast numbers.

The three chief areas of radiolarian rocks in New South Wales are Bingara, Barraba, and Tamworth, situated in the New England District, between 180 and 270 miles north of Sydney. Bingara, the farthest locality, is 30 miles north of Barraba; and this latter is 60 miles north of Tamworth. The character of the rocks in these localities tends to show that they belong to the same series; and in this case its extension from south to north is about 85 miles.